SimpleLazyTeam
Unit Technologies

Members:

Yueh-Han Chuang	ID: yuehhanc	Han-Yu Lee	ID: hanyul
Ke Han	ID: khan1	Jiayi Wang	ID: jiayiw2
Yen-Hsiang Huang	ID: yenhsiah		

Overview

Project purpose:

To reproduce and demonstrate the algorithm shown in this paper:

Sequential Line Search for Efficient Visual Design Optimization by Crowds

Unit Technologies Detail

Big picture and member in charge:

Mathematic (Yen-Hsiang & Jia Yi)

Sequential line search using bayesian optimization

GUI (Ke & Yueh-Han & Han-Yu)

Slider bar window

File I/O system(Open File, Finish, Export Image)

Image filtering(Decoder and Rendering)

Assembly of parts(Han-Yu & Yueh-Han)

Establish the framework ,specify input/ output between each part of code

Put everyone's code together

Algorithms:

Sequential line search using bayesian optimization

FOR t = 1, 2, ... , max iteration DO

- Compute goodness function g^{MAP} and the model hyperparameters $theta^{MAP}$ maximum a posteriori (MAP) estimation based on observed data
- Find current best position by $x^+ = argmax(mu)$, where mu is the mean function.
- Find best-expected-improving position $x^{EI} = argmax(a^{EI})$, where a^{EI} is the acquisition function measuring the "worthiness"
- Construct slider space based on (x^+, x^{EI})
- Get next observation by line search (print slide bar to user, waiting for user input)
- Collect user input to current observation (and remove similar or repeated observations)

End FOR

Libraries:

OpenGL: for GUI

OpenCV: for image processing

NLopt: for Bayesian optimization

Eigen (Matrix, Vector, Solver): as mathematical tool